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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/546,962

04/11/2000

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4166

7590 02/19/2008
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EXAMINER

LEE, SEUNG H

ART UNIT

PAPER NUMBER

2887

MAIL DATE

DELIVERY MODE

02/19/2008

PAPER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte PETER MERCHANG

Appeal 2007-2346
Application 09/546,962
Technology Center 2800

Decided: February 19, 2008

Before LANCE LEONARD BARRY, MAHSHID D. SAADAT, and
ROBERT E. NAPPI, *Administrative Patent Judges*.

BARRY, *Administrative Patent Judge*.

DECISION ON APPEAL

I. STATEMENT OF THE CASE

A Patent Examiner rejected claims 1-6, 8-10, 12-18, 20, 21, and 23.
The Appellants appeal therefrom under 35 U.S.C. § 134(a). We have
jurisdiction under 35 U.S.C. § 6(b).

A. INVENTION

1 The invention at issue on appeal scans and reads bar codes. "From quick check-outs in the grocery store to accurate inventory control for businesses, [bar code] scanners/readers provide almost instantaneous computer recognition and documentation of various items while . . . relieving humans of mundane tasks thereby saving time and effort." (Spec. 1.)

Complicated mechanisms have evolved to scan bar codes. Motors and other electro-mechanical devices are often used to rotate mirrors or lights. Elaborate processes and materials are employed to fabricate many electronic systems. (*Id.* 2.)

In contrast, the Appellant's piezoelectric scan engine and detecting system ("PSD") projects a light ray through an aperture window and a focusing system onto a bar code target. The PSD features a radially-arc'd piezoelectric material having a variable deflection angle for directing light to targets. By geometrically shaping the piezoelectric material, asserts the Appellant, scanning may be achieved with minimal materials and mounting structures. (*Id.* 7.)

B. ILLUSTRATIVE CLAIM

Claim 1, which further illustrates the invention, follows.

1. A system for scanning a target, comprising:
 - a light source providing a light beam;
 - a reflector having an arcuate reflective surface with a variable shape;
 - a shape controlling system for controlling the shape of the reflector;
 - a beam expander with a generally cylindrical reflective outer surface; and
 - the reflector reflecting a first portion of the light beam from the light source onto the beam expander, the beam expander reflecting at least a second portion of the first portion of the light beam onto the target, and the shape controlling system selectively varying the shape of the reflector, whereby the second portion scans across at least a portion of the target.

C. REJECTION

Claims 1-6, 8-10, 12-18, 20, 21, and 23 stand rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 6,053,409 ("Brobst") and U.S. Patent No. 5,710,418 ("Tawara").

II. ISSUE

"Rather than reiterate the positions of parties *in toto*, we focus on an issue therebetween." *Ex parte Kuruoglu*, No. 2007-0666, 2007 WL 2745820, at *2 (BPAI 2007). The Appellant observes that "in appellant's claims . . . it is recited that *the shape controlling system selectively varying the shape of the reflector, whereby the second portion scans across at least a portion of the target.*" (Reply Br. 3.) The Examiner finds that "such

teachings are taught/shown by Brobst et al. wherein Brobst et al. discloses the deformable mirror assembly (124) serving as the shape controlling system for varying the shape of the reflector as shown in figure 6 and the polygon scan mirror or the oscillating scan mirror producing the second portion of the light beam (138) that scans the target." (Ans. 7.) The Appellant argues that "a deformable mirror assembly of Brobst, *et al.* performs a different function of varying the focus of the light beam by varying the shape of the reflector and does not perform the function of scanning the beam across the target (*See Brobst, et al.* col. 5 lines 5-7)." (Reply Br. 3.) Therefore, the issue is whether the combined teachings of Brobst and Tawara would have suggested scanning a reflected light beam across any part of a target by varying the shape of a reflector.

III. LAW

"In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a *prima facie* case of obviousness." *In re Rijckaert*, 9 F.3d 1531, 1532 (Fed. Cir. 1993) (citing *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992)). In determining obviousness, each reference "must be read, not in isolation, but for what it fairly teaches in combination with the prior art as a whole." *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (citing *In re Keller*, 642 F.2d 413, 425 (CCPA 1981)). "The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art." *In re Young*, 927 F.2d 588, 591 (Fed. Cir. 1991) (*Keller*, 642 F.2d at 425).

IV. ANALYSIS

Here, we agree with the Examiner that Brobst's "polygon scan mirror or the oscillating scan mirror produc[es] the second portion of the light beam (138) that scans the target." (Ans. 7.) The reference explains that "[t]he scan mirror **16** is mounted on a motor . . . for rotation about a center post **43**." (Col. 3, ll. 17-19.) "Alternatively, as shown in FIG. 5A, the rotating polygonal scan mirror **128** may be replaced by an oscillating mirror **129**, actuated by a motor **131** for producing the scanning beam **138**." (Col. 5, ll. 1-4.)

The Examiner bases his rejection, however, on the combined teachings of Brobst and Tawara. For its part, Tawara seeks to eliminate "shortcoming[s] of the various known rotating mechanisms for causing scanning of a laser beam" (Col. 1, ll. 55-56.) "In accordance with [Tawara's] invention, the . . . **light beam is not sequentially swept across the bar code being read**, but one dimension of the light beam is greatly expanded to convert the generally circular or elliptical cross-section of the beam into that of a greatly elongated ellipse or rectangle" (Col. 3, ll. 14-19 (emphasis added).) Instead of rotating mechanisms for causing scanning of a laser beam, the reference employs a "light expander compris[ing] a circular cone **44** . . ." (col. 4, ll. 47-49) "for expanding a laser diode light beam . . . into a line-like shape (*id.*, ll. 45-46)."

The Examiner concludes, "It would have been obvious . . . to adapt the teachings of Tawara (i.e., cylindrical body for reflecting the scanning beam) into the system of Brobst . . . to provide an [sic] simple and inexpensive reader by projecting a line laser beam" (Ans. 4.) We find, however, that employing Tawara's light expander in Brobst's system would have eliminated the latter's rotating polygonal scan mirror or oscillating mirror. Such a combination of teachings, moreover, would not have scanned a reflected light beam across a target but would instead have expanded the beam into a line-like shape. Absent a suggestion of scanning a reflected light beam across at part of a target by varying the shape of a reflector, we are unpersuaded of a *prima facie* case of obviousness.

V. ORDER

For the aforementioned reasons, we reverse the rejection of claims 1-6, 8-10, 12-18, 20, 21, and 23 under § 103(a).

REVERSED

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